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File: DWPI

May 20, 1998

DERWENT-ACC-NO: 1998-592811

DERWENT-WEEK: 199850

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TITLE: Producing a tool for hot and cold pressing and stamping - involves preliminary compression of melt in the press die, its maintenance under a pressure with a fixed press plunger until crystallised crust is formed

INVENTOR: KOROSTELOV, V F; PETROV, A S

PATENT-ASSIGNEE:

ASSIGNEE

UNIV VLADIMIR TECH

CODE

UYVLR

PRIORITY-DATA: 1996RU-0111887 (June 13, 1996)

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PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES.

MAIN-IPC



RU 2111085 C1

May 20, 1998

003

B22D017/00

APPLICATION-DATA:

PUB-NO

APPL-DATE

APPL-NO

DESCRIPTOR

RU 2111085C1

June 13, 1996

1996RU-0111887

INT-CL (IPC): B22 D 17/00

ABSTRACTED-PUB-NO: RU 2111085C

BASIC-ABSTRACT:

Metal heated to 50-120 deg. C above its liquidus point is poured into the press chamber (1), and is pressed into a press die . The metal is preliminarily compressed in the press die (3), and is kept under a pressure of 100-200 MPa with a fixed position of the press plunger (2) until a crust of crystallised metal is formed. The process is completed by introduction of the press plunger into a liquid metal which foreseen as a surplus volume beyond the limits of the casting. The rate of the press plunger is equal to or slightly higher than the rate of crystallisation of the melt.

The method was used to produce a die consisting of steel 'R9M5K' for hot pressing of tool steel 'Kh12M'. The alloy was melted and heated to 1590 deg. C. The press die (3) was heated to 350-400 deg. C. The rate of motion of the press plunger was maintained at 0.2-0.3 mm/s.

ADVANTAGE - Tool life is prolonged 1.2-1.5 times in comparison with tools formed of rolled or forged blanks.

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS: PRODUCE TOOL HOT COLD PRESS STAMP PRELIMINARY COMPRESS MELT PRESS DIE  
MAINTAIN PRESSURE FIX PRESS PLUNGE CRYSTAL CRUST FORMING

DERWENT-CLASS: M22 P53

CPI-CODES: M22-G03D;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1998-177770

Non-CPI Secondary Accession Numbers: N1998-461174

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